52

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/805,423	03/13/2001	Thomas J. Pennello	MWI.002A	2137

27299 7590 02/24/2005

GAZDZINSKI & ASSOCIATES
11440 WEST BERNARDO COURT, SUITE 375
SAN DIEGO, CA 92127

EXAMINER	
WOOD, WILLIAM H	

ART UNIT	PAPER NUMBER
2124	

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/805,423	PENNELLO ET AL.	
	Examiner	Art Unit	
	William H. Wood	2124	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,11-14 and 17-42* is/are pending in the application.

4a) Of the above claim(s) *23-42* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,11-14 and 17-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-4, 11-14, 17-42 have been examined.

Restriction Requirement

1. Newly submitted claims 23-42 are directed to inventions that are independent or distinct from the invention originally claimed for the following reasons: claims 1-2 are combination classifiable in 717/141, claims 23-31 are an independent subcombination classifiable in 717/124; claims 1-2 are subcombination, claims 33-42 are independent subcombination classifiable in 717/124.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 23-42 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-2 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the limitation "input strings" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by **Shapiro** et al. (USPN 4,899,128).

Claim 3

Shapiro disclosed a method of analyzing a plurality of strings of data derived from at least one data processing device *(column 1, lines 5-10)*, comprising:

- initializing said data, said act of initializing including creating a symbol array *(column 1, lines 35-44; figure 1; initialization in the sense that an operation is performed on the strings before comparison)*;
- analyzing said strings of data based at least in part on said symbol array *(column 2, lines 18-43)*; and
- identifying at least one relationship between one or more of said data within one or more of said strings *(column 2, lines 18-43)*
- wherein said act of identifying comprises:

- identifying groups of said data within said strings that are identical across said plurality of input strings *(column 2, lines 29-31)*; and
- identifying groups of said data within said strings that appear in the same order within all of said strings *(column 2, lines 29-31)*.

6. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by **Baird** et al. (USPN 5,848,264).

Claim 19

Baird disclosed a multi-processor integrated circuit device *(figures 7-8)*, comprising:

- a first processor core adapted to run a first software process, said first software process adapted to generate a first string of data *(column 2, lines 38-40)*;
- a second processor core adapted to run a second software process said second software process adapted to generate a second string of data *(column 2, lines 38-40)*;
- at least one data interface, wherein said first and second processors respectively transfer data comprising said first and second strings to an external debug process adapted to identify similarities and differences between the operation of said first and second [software] processes on said first and second processors, via said at least one interface *(figures 7-8; and column 6, lines 32-39)*.

- wherein said debug process identifies the similarities and differences by:
  - identifying groups of said data within said first and second strings that are identical across at least both of said strings *(column 7, lines 28-37)*; and
  - identifying groups of said data within said first and second strings that appear in the same order within at least both of said strings *(column 7, lines 28-37)*.

Claim 22

Baird disclosed the integrated circuit device of Claim 19, wherein said strings each comprise a plurality of lines, and said debug process is further adapted to:

form a plurality of groups of lines, wherein a group comprises a sequence of lines that are the same in all of said strings *(column 7, lines 28-37, bits)*; and

recursively evaluate, in order:

a first region of all the strings that appears before the first of said plurality of groups *(column 7, lines 28-37, bits)*;

each of a plurality of second regions occurring between two of said plurality of groups *(column 7, lines 28-37, bits)*; and

a third region following the last of said plurality of groups *(column 7, lines 28-37, bits)*.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kernighan** et al., "The Practice of Programming" (page 149-150) in view of **Baird** et al. (USPN 5,848,264).

Claim 1

Kernighan disclosed a method of formatting a plurality of strings of data, comprising:

- initializing the data in each of said strings *(page 149-150, starting the method)*;
- finding the differences between said strings *(page 149-150, section "Automate regression testing")*; and
- providing said differences in a display to a user *(required of debugging and testing systems)*.
- wherein said act of identifying comprises:
  - identifying groups of said data within said strings that are identical across said plurality of input strings *(page 149-150, section "Automate regression testing")*; and

- identifying groups of said data within said strings that appear in the same order within all of said strings *(page 149-150, section "Automate regression testing")*.

Kernighan did not explicitly state *processes running on respective ones of a plurality of digital processors*. **Baird** demonstrated that it was known at the time of invention to debug processes from several CPU cores, digital processors (column 5, lines 16-27; column 6, lines 32-39; figure 3). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the comparison debugging/testing of **Kernighan** with multiple processors as found in **Baird**'s teaching. This implementation would have been obvious because one of ordinary skill in the art would be motivated to increase debug/test capacity for quicker more efficient execution (**Baird**: column 2, lines 38-40).

Claim 17

Kernighan disclosed a method of evaluating the operation of a plurality of software processes *(page 149-150)*, comprising:

- generating a first data string using a first of said plurality of software processes *(page 149-150; note third paragraph under "Automate regression testing" section)*;
- generating a second data string using a second of said plurality of software processes *(page 149-150; note third paragraph under "Automate regression testing" section)*;

- inputting said first and second data strings into a debug software process *(page 149-150; note third paragraph under "Automate regression testing" section)*;
- analyzing said first and second data strings using said debug process *(page 149-150; note third paragraph under "Automate regression testing" section)*; and
- evaluating the operation of said processes based at least in part on said act of analyzing *(page 149-150; note third paragraph under "Automate regression testing" section)*
- comparing third data strings *(page 149-150, cmp command)*

Kernighan did not explicitly state *processes running on respective ones of a plurality of digital processors*. **Baird** demonstrated that it was known at the time of invention to debug processes from several CPU cores, digital processors (column 5, lines 16-27; column 6, lines 32-39; figure 3). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the comparison debugging/testing of **Kernighan** with multiple processors as found in **Baird**'s teaching. This implementation would have been obvious because one of ordinary skill in the art would be motivated to increase debug/test capacity for quicker more efficient execution (**Baird**: column 2, lines 38-40).

Claim 18

Kernighan and **Baird** disclosed the method of Claim 17, wherein the act of analyzing comprises:

(i) identifying common patterns within at least one first portion of said first and second data strings *(**Kernighan**: page 149-150; note second paragraph under "Automate regression testing" section)*; and

(ii) identifying differences within at least one second portion of said first and second data strings *(**Kernighan**: page 149-150; note second paragraph under "Automate regression testing" section)*

Claim 20

Kernighan and **Baird** disclosed the method of Claim 1, wherein said strings each comprise a plurality of lines, and said method further comprises:

forming a plurality of groups of lines, wherein a group comprises a sequence of lines that are the same in all of said strings *(**Kernighan**: page 149-150, files contain plurality of lines)*; and

recursively analyzing, in order:

a first regions of all the strings that appears before the first of said plurality of groups *(page 149-150, lines of characters)*;

each of a plurality of second regions occurring between two of said plurality of groups *(page 149-150, lines of characters)*; and

a third region following the last of said plurality of groups *(page 149-150, lines of characters)*.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kernighan** et al., "The Practice of Programming" (page 149-150) in view of **Baird** et al. (USPN 5,848,264) as applied above and in further view of **Shapiro** (USPN 4,899,128) in further view of **Aho** et al., "Compilers Principles, Techniques, and Tools".

Claim 2

Kernighan and **Biard** did not explicitly state the method of Claim 1, wherein the act of initializing comprises:

- creating a symbol table having a plurality of symbol numbers associated therewith *(**Shapiro**: figure 1, column 1, lines 35-44, column 2, lines 58-65)*;
- for each of said input strings, determining whether said each string is present in said symbol table *(**Shapiro**: column 2, lines 40-44)*; and
- if said each string is present in said symbol table, obtaining at least one symbol number for said string from said symbol table *(**Shapiro**: column 2, lines 40-44)*.

Shapiro demonstrated that it was known at the time of invention to perform the above (as noted above). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the testing and comparing system of **Kernighan** and **Biard** with a symbol table as found in **Shapiro**'s teaching. This implementation would

have been obvious because one of ordinary skill in the art would be motivated to provide a common (and thus easily implemented) data structure (symbol tables) for housing information (which must be housed for manipulation of the computer implemented method). Further, **Shapiro** clearly indicates using symbol tables for comparing data (column 1, lines 35-44).

Shapiro did not explicitly state *creating said symbol array having at least one element fore each of said strings*. **Aho** demonstrated that it was known at the time of invention to create and array with elements for multiple strings (page 431, figure 7.32(b)). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the string symbol table system of **Shapiro** with an expandable symbol array as found in **Aho**'s teaching. This implementation would have been obvious because one of ordinary skill in the art would be motivated to provide a data structure capable of flexibility in the face of unknown future string lengths (**Aho**: page 429, paragraph 3, under section 7.6) and efficiency of memory usage (**Aho**: page 431, first paragraph, sentences 2 and 3).

9. Claims 4 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Shapiro** (USPN 4,899,128) in further view of **Aho** et al., "Compilers Principles, Techniques, and Tools".

Claim 4

Shapiro disclosed the method of Claim 3, wherein the act of initializing comprises:

- creating a symbol table having a plurality of symbol numbers associated therewith *(**Shapiro**: figure 1, column 1, lines 35-44, column 2, lines 58-65)*;
- for each of said input strings, determining whether said each string is present in said symbol table *(**Shapiro**: column 2, lines 40-44)*; and
- if said each string is present in said symbol table, obtaining at least one symbol number for said string from said symbol table *(**Shapiro**: column 2, lines 40-44)*.

Shapiro did not explicitly state *creating said symbol array having at least one element fore each of said strings*. **Aho** demonstrated that it was known at the time of invention to create and array with elements for multiple strings (page 431, figure 7.32(b)). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the string symbol table system of **Shapiro** with an expandable symbol array as found in **Aho**'s teaching. This implementation would have been obvious because one of ordinary skill in the art would be motivated to provide a data structure capable of flexibility in the face of unknown future string lengths (**Aho**: page 429, paragraph 3, under section 7.6) and efficiency of memory usage (**Aho**: page 431, first paragraph, sentences 2 and 3).

Claim 11

The limitations of claim 11 correspond to the limitations of data processing device claim 12, and as such are rejected in the same manner here.

Claim 12

Shapiro disclosed a data processing device, comprising:

- a processor adapted to process digital data and execute a computer program *(column 1, background)*;
- a storage device in data communication with said processor *(column 1, background)*, said storage device comprising:
  - a computer readable medium *(column 1, background, the necessary storage device)*; and
  - a computer program stored on said computer readable medium, said program being adapted for analyzing a plurality of strings of data derived from at least one data processing device according to the method *(column 1, background)* comprising:
    - initializing said data, *(column 1, lines 35-44; figure 1; initialization in the sense that an operation is performed on the strings before comparison)*;
    - analyzing said strings of data based at least in part on said symbol array *(column 2, lines 18-43)*; and

- identifying at least one relationship between one or more of said data within one or more of said strings *(column 2, lines 18-43)*.

- wherein said act of identifying comprises:
  - identifying groups of said data within said strings that are identical across said plurality of input strings *(column 2, lines 29-31)*; and
  - identifying groups of said data within said strings that appear in the same order within all of said strings *(column 2, lines 29-31)*.

Shapiro did not explicitly state *creating said symbol array having at least one element fore each of said strings*. **Aho** demonstrated that it was known at the time of invention to create and array with elements for multiple strings (page 431, figure 7.32(b)). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the string symbol table system of **Shapiro** with an expandable symbol array as found in **Aho**'s teaching. This implementation would have been obvious because one of ordinary skill in the art would be motivated to provide a data structure capable of flexibility in the face of unknown future string lengths (**Aho**: page 429, paragraph 3, under section 7.6) and efficiency of memory usage (**Aho**: page 431, first paragraph, sentences 2 and 3).

Claim 21

Shapiro and **Aho** disclosed the storage device of Claim 11, wherein said strings each comprise a plurality of lines, and said method further comprises:

forming a plurality of groups of lines, wherein a group comprises a sequence of lines that are the same in all of said strings *(**Shapiro**: column 2, lines 29-31; characters and elements make up groups and lines)*; and

recursively analyzing, in order: a first region of all the strings that appears before the first of said plurality of groups *(column 2, lines 29-31; characters and elements make up groups and lines)*;

each of a plurality of second regions occurring between two of said plurality of groups *(column 2, lines 29-31; characters and elements make up groups and lines)*; and

a third region following the last of said plurality of groups *(column 2, lines 29-31; characters and elements make up groups and lines)*.

10. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Shapiro** (USPN 4,899,128) in further view of **Aho** et al., "Compilers Principles, Techniques, and Tools" in further view of **Baird** et al. (USPN 5,848,264).

Claim 13

Shapiro and **Aho** did not explicitly state the device of Claim 12, further comprising a plurality of data interfaces adapted to receive said data strings from respective ones of a plurality of software processes running on respective ones of a plurality of data processors. **Baird** demonstrated that it was known at the time of invention to debug processes from several CPU cores, digital processors and thus interfaces (column 5, lines 16-27; column 6, lines 32-39; figure 3). It would have been obvious to one of

ordinary skill in the art at the time of invention to implement the comparison debugging/testing of **Shapiro** and **Aho** with multiple processors as found in **Baird**'s teaching. This implementation would have been obvious because one of ordinary skill in the art would be motivated to increase debug/test capacity for quicker more efficient execution (**Baird**: column 2, lines 38-40).

Claim 14

Shapiro, **Aho** and **Baird** disclosed the device of Claim 13, further comprising said plurality of data processors (see claim 12).

Response to Arguments

9. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. This action is non-Final.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Wood whose telephone number is (571)-272-3736. The examiner can normally be reached 9:00am - 5:30pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (571)-272-3719. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9306 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

William H. Wood
February 22, 2005

ANIL KHATRI
PRIMARY EXAMINER